

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of claims:**

1. (Currently amended) A detoxified and immunologically active heat-labile enterotoxin protein having an amino acid sequence of heat-labile enterotoxin of *E. coli* of *Escherichia coli*, wherein serine residue at position 63 is substituted with tyrosine or amino acid residues at positions 110 and 112 are mutated in a site-directed manner deleted.
2. (Currently amended) A detoxified and immunologically active heat-labile enterotoxin protein having an amino acid sequence of heat-labile enterotoxin of *E. coli* (SEQ ID NO:3), in which serine residue at position 63 is substituted with tyrosine SEQ ID NO:3.
3. (Withdrawn-Currently amended) A DNA sequence (SEQ ID NO:4) encoding the detoxified and immunologically active heat-labile enterotoxin protein of claim 2 claim 1.
4. (Withdrawn-Currently amended) A recombinant expression vector pBlueKS-ALTS63Y which comprises the DNA of claim 3.
5. (Withdrawn-Currently amended) *Escherichia coli* Top10F' pBlueKS-ALTS63Y (KCTC-0648BP) transformed with the recombinant expression vector pBlueKS-ALTS63Y of claim 4.
6. (Currently amended) A detoxified and immunologically active heat-labile enterotoxin protein having an amino acid sequence of heat-labile enterotoxin of *E. coli* (SEQ ID NO:5, in which glutamic acid residues at positions 110 and 112 are deleted) SEQ ID NO:5.

7. (Withdrawn-Currently amended) A DNA sequence (SEQ ID NO:6) encoding the detoxified and immunologically active heat-labile enterotoxin protein of claim 6.

8. (Withdrawn-Currently amended) A recombinant expression vector pBlueKS-  
LT4110/112 which comprises the DNA of claim 7.

9. (Withdrawn-Currently amended) *Escherichia coli* Top10F' pBlueKS-  
LT4110/112 (KCTC 0649BP) transformed with the recombinant expression vector pBlueKS-  
LT4110/112 of claim 8.

10. (Withdrawn-Currently amended) A method for preparing the detoxified and immunologically active heat-labile enterotoxin protein of claim 1 which comprises the steps of culturing a culture of recombinant microorganism transformed with an expression vector comprising a DNA encoding the protein and isolating the protein from the culture.

11. (Withdrawn-Currently amended) The method according to claim 10, wherein the recombinant microorganism is *Escherichia coli* Top10F'-pBlueKS-/LTS63Y deposited under accession number of (KCTC 0648BP) or *Escherichia coli* Top10F'-pBlueKS-/LT4110/112 deposited under accession number of (KCTC 0649BP).

12. (Cancel)

13. (Currently amended) A mucosal adjuvant comprising an active ingredient of the detoxified and immunologically active heat-labile enterotoxin protein of claim 1.

14. (Currently amended) The detoxified and immunologically active heat-labile enterotoxin protein of claim 1, wherein serine residue at position 63 is substituted with tyrosine.

15. (Withdrawn-Currently amended) A nucleic acid encoding the detoxified and immunologically active heat-labile enterotoxin protein of claim 14.

16. (Withdrawn) A vector comprising the nucleic acid of claim 15.

17. (Withdrawn) A host cell transformed with the vector of claim 16.

18. (Currently amended) The detoxified and immunologically active heat-labile enterotoxin protein of claim 1, wherein glutamic acid residues at positions 110 and 112 are deleted.

19. (Withdrawn) A nucleic acid encoding the protein of claim 18.

20. (Withdrawn) A vector comprising the nucleic acid of claim 19.